

The opinion in support of the decision being entered today was not written for publication and is not precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NICHOLAS W. WARNE

Appeal No. 1997-2509
Application No. 08/230,982

ON BRIEF

Before WILLIAM F. SMITH, SCHEINER, and MILLS, Administrative Patent Judges.

MILLS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-20, which are all of the claims pending in this application.

We reverse.

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Claims 1 and 8 are illustrative of the claims on appeal and read as follows:

1. A composition comprising IL-11 and glycine.
8. A composition comprising IL-11, glycine, and a buffering agent.

The prior art references relied upon by the examiner are:

Kwan	4,496,537	Jan. 29, 1985
Kato et al. (Kato)	4,675,183	Jun. 23, 1987
Singh et al. (Singh)	5,215,743	Jun. 1, 1993
Patel	5,358,708	Oct. 25, 1994

Wang et al. (Wang), "Parenteral formulation of proteins and peptides: Stability and stabilizers," J. Parenteral Sci. Tech., Vol. 42(S), No. 2S, pp. S3-S26 (1988)

Manning et al. (Manning), "Stability of protein pharmaceuticals," Pharm. Res., Vol. 6, No. 11, pp. 903-918 (1989)

Paul et al. (Paul), "Molecular cloning of a cDNA encoding interleukin 11, a stromal cell-derived lymphopoietic and hematopoietic cytokine," Proc. Natl. Acad. Sci., Vol. 87, pp. 7512-7516 (1990)

A reference relied upon by the appellant is:

Minasian et al. (Minasian), "A review of cytokine structures," Protein Seq Data Anal, Vol. 5, pp. 57-64 (1992)

Grounds of Rejection

Claims 1-20 stand rejected under 35 U.S.C. § 103 as obvious over Wang and Manning in view of Paul taken with Kwan, Kato, Singh and Patel.

DISCUSSION

In reaching our decision in this appeal, we have given consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellant and the examiner.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the noted rejection, we make reference to the examiner's Answer for the examiner's reasoning in support of the rejection, and to the appellants' Brief for the appellants' arguments thereagainst. As a consequence of our review, we make the determinations which follow.

35 U.S.C. § 103

Claims 1-20 stand rejected under 35 U.S.C. § 103 as obvious over Wang and Manning in view of Paul taken with Kwan, Kato, Singh and Patel.

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art. In re Bell, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993). An obviousness analysis requires that the prior art

both suggest the claimed subject matter and reveal a reasonable expectation of success to one reasonably skilled in the art. In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991). With this as background, we analyze the prior art applied by the examiner in the rejection of the claims on appeal.

The examiner relies on Paul for establishing the protein sequence of interleukin 11 (IL-11). The disclosure of Wang is relied on for establishing the various factors which are known in the art to affect the stability of protein structure and the effect that various amino acid residues have on protein structure. Answer, page 4. The examiner acknowledges that the disclosure of Wang is not directed to IL-11 per se. Answer, page 5. Manning is also relied on for its disclosure of the effect that various amino acids have on protein structure.

Patel suggests that interferon, GM-CSF and interleukin are stabilized in the presence of methionine or histidine. GM-CSF is indicated to be stabilized in the presence of glycine. Patel, column 5, example 4. Singh describes the stabilization of tumor necrosis factor from aggregation and polymerization in the presence of glycine. Kwan discloses the addition of glycine and a buffer, such as phosphate buffer, for the stabilization of alpha-interferon. Kato describes the stabilization of interferon with histidine and buffer salts. Answer, pages 5 and 6.

Thus, it is the examiner's position that (Answer, page 6):

the person of ordinary skill in the art confronted with the problem of stabilizing IL-11, whose structure was known at the time the invention was made, as shown by Paul et al., and therefore its amino acid residues, and in view of the Manning and Wang reviews, that teach the various factors and troublesome amino acid residues that influence protein stability, and generally disclose some of the techniques that existed in the art of stabilizing proteins at the time the invention was made, would consider the stabilization of such a protein by reviewing existing methods of stabilizing proteins from the same class of proteins, i.e., cytokines. In view of all of the secondary references disclosing not only requisite amounts but also the same ingredients that are now of conventional use in the art, i.e., glycine, histidine, and phosphate buffers for markedly significant effect in stabilizing the cytokine claimed herein, it would have been obvious to one of ordinary skill in the art to stabilize IL-11 with glycine and histidine or phosphate buffer. To optimize amounts of ingredients shown by these references for the cytokine of interest here would have been within the skill of the ordinary person in the art and this is indicated by the reference[s] themselves.

In contrast, the appellant argues the examiner has not established a prima facie case of obviousness because the prior art fails to disclose or suggest the problem of stabilizing a protein as basic and as insoluble as IL-11 and does not disclose a reasonable expectation of success of stabilizing such protein. Brief, page 3. Appellant argues there is no expectation of success because IL-11 does not show any structural similarity with the proteins of the cited references. Brief, page 6.

Appellant also argues that the examiner's logic fails because proteins classified by their function (such as interleukins) are not structurally related, and interleukin-11 is not structurally related to any known protein, citing Minasian as evidence of this proposition.

Brief, pages 4-7. To further support this argument, appellant presents the Declaration of Dr. Warne stating that interleukin nomenclature is based primarily on function and is not based on structural similarities. Dr. Warne further states that it is not possible to make generalizations about how these molecules will behave in solution. Brief, page 5.

Appellant controverts the examiner's analysis of Wang, indicating that Wang suggests that glycine alone is insufficient to stabilize many proteins. Appellant argues the examiner has not established that any of the cited proteins show structural similarity to IL-11 and thus the examiner has not established a prima facie case of obviousness. Brief, page 10.

Appellant submits that even if the prior art does provide a generalized teaching to try glycine (appellant submits it does not), that this is nothing more than an invitation to experiment and does not render obvious appellants' invention. Brief, page 16.

In discussing obviousness in In re O'Farrell, 853 F.2d 894, 903-04, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988)(citations omitted) the Federal Circuit stated:

The admonition that "obvious to try" is not the standard under § 103 has been directed mainly at two kinds of error. In some cases, what would have been "obvious to try" would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful. . . . In others, what was "obvious to try" was to explore a new technology or general approach that seemed to be a promising field of

experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it.

We agree with appellant that the examiner has not established a prima facie case of obviousness based on the record before us. At best, the examiner has provided evidence that it would be obvious to experiment or try combining certain amino acids with certain proteins in an attempt to achieve protein stabilization.

After evidence or arguments is submitted by the appellant in response to rejection based on obviousness, patentability is determined on the totality of the record, by a preponderance of evidence with due consideration to persuasiveness of the argument. We have carefully studied the arguments and evidence of record. On balance, we believe that the totality of the evidence presented by the examiner and appellant weighs in favor of finding the claimed invention non-obvious in view of the cited references. We find the examiner has not established on the record before us that the cited references both suggest the claimed subject matter and reveal a reasonable expectation of success to one reasonably skilled in the art. The rejection of the claims for obviousness of the claimed invention is reversed.

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CONCLUSION

The rejection of claims 1-20 under 35 U.S.C. § 103 is reversed.

REVERSED

WILLIAM F. SMITH)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
TONI R. SCHEINER)	
Administrative Patent Judge)	APPEALS AND
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